

AMENDMENT AND RESPONSE TO OFFICIAL ACTION

Applicant: Tyler E. PEASE
Serial No.: 09/649,692
Examiner: Y. Horton
Group No.: 3635
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3
31. (New) The insulated wall panel of Claim 1, wherein lateral sides of the first and second reinforcing strips are spaced at least 8 inches away from the lateral edges of the rigid foam sheet.

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2
32. (New) The insulated wall panel of Claim 31, wherein the first and second reinforcing strips are generally spaced 16 inches apart.

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2
33. (New) The insulated wall panel of Claim 1, wherein the first and second reinforcing layers primarily consist of paper, foil or plastic film.

REMARKS

In paragraph 1 of the Office Action the Examiner objected to all the FIGURES. Three (3) sheets of amended FIGURES have been provided herein in which the reference numerals missing from the FIGURES have been added.

In addition to the reference numerals, the head of a headed fastener 36 has been added to FIGURES 3 and 4. Support for this can be found in the specification, which recites a headed fastener as well as the slots and holes through which the headed fastener is inserted. The specification also explains that the headed fastener, when inserted through the reinforcing strip, is recessed below the top surface 19 of the reinforcing strip. The particular shape of the head (shown here as roughly round) forms no part of the invention.

In paragraph 3 of the Office Action the Examiner rejected Claims 1 and 2 under 35 U.S.C. § 102 as being anticipated by Ford (U.S. Patent No. 5,638,651). The Applicant respectfully traverses the Examiner's rejection of the claims.

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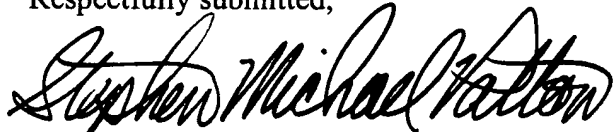
Claims 14 and 15 are dependent upon Claim 11. Claim 11 is allowable for the reasons provided above with regard to the rejection of Claim 11.

In paragraph 9 of the Office Action the Examiner objected to Claims 3-5, 9-10, 13, and 16-20 as being dependent upon a rejected base claim. The Examiner stated that these claims would be allowable if rewritten in independent form. These claims (with the exception of Claims 16-20, which are already in independent form) have been rewritten as the Examiner suggested.

New Claims 21-33 have been added by this Amendment. These claims depend variously from Claim 1.

If the Examiner would like to discuss any of the foregoing, he is respectfully requested to call the undersigned at (414) 276-0977 x15.

Respectfully submitted,



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Marked up version of the Specification, wherein deleted items are **[bracketed]** and additions are **underlined** as follows:

Substitute Paragraph 2 on Page 2:

When rigid foam insulation is applied it must therefore permit or provide for an
5 additional layer to be attached to it, or at least **be** in contact with its outer surface. This
problem is not a trivial one to solve, especially for interior walls in which another
relatively fragile material, gypsum board, is attached. One cannot easily, and in many
cases may **[no] not** wish to attach the layer of wall covering directly to the wall or studs
behind the rigid foam paneling. For example, when attaching interior wall covering to a
10 concrete wall, particularly an exterior concrete wall, it is especially bad to have fasteners
such as nails or screws penetrating the wall-covering passing through the rigid foam
layer, and being embedded in the concrete wall. Such fasteners provide a simple channel
for heat loss and for vapor or water penetration to the outer surface of the wall covering.

Substitute Paragraph 3 on Page 7:

On the outer surfaces of panel 10 are two thin reinforcing sheets 20 and 22. The
15 first of these, sheet 20, extends completely across the side of the rigid foam sheet
[approximate] proximate to the reinforcing strips. The second of these, sheet 22,
extends completely across and covers the entire surface of the opposing side of the sheet.

Substitute Paragraph 3 on Page 10:

In step 49A, adhesive-dispensing nozzles 50, 52 apply adhesive to reinforcing
15 sheet material being drawn off two rolls 54 and 56. Rigid foam sheet 12 with reinforcing
strips 18 inserted is then moved between these rolls and the adhesive-coated reinforcing
sheet material is unrolled **and** applied to the opposing surfaces of the rigid foam sheet 12.

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Substitute Paragraph 1 on Page 12:

Once the composite structure reaches the end 94 of the supports, the foam has cured and the panel is substantially rigid. This continuous [sheets] sheet of paneling is then cut to discrete lengths by a flying cutter 96, disposed after the end 94 of the supports.

Marked up version of the claims, wherein deleted items are [bracketed] and additions are underlined as follows:

- 1 *repeat* 1. (Amended) An insulated wall panel, comprising:
2 a rigid foam sheet with first and second planar sides and having first and
3 second grooves extending substantially the full length of the sheet in a substantially
4 parallel orientation in the first side of the sheet and first and second opposing edges
5 generally parallel to the first and second grooves;
6 a first reinforcing strip having a length, a top and a bottom with the bottom
7 being disposed in the first groove and the top facing outwardly away from the first
8 groove, wherein the first strip extends substantially the full length of the sheet and
9 disposed in said sheet inwardly away from the first and second edges of the sheet;
10 a second reinforcing strip having a length, a top and a bottom with the
11 bottom being disposed in the second groove and the top facing outwardly away from the
12 second groove, wherein the second strip extends substantially the full length of the sheet
13 and is disposed in said sheet inwardly away from the first and second edges of the
14 sheet;
15 a first thin reinforcing layer bonded to the first planar side of the sheet,
16 and extending across the top of the first and second grooves and substantially covering
17 the entire first planar side of the sheet; and
18 a second thin reinforcing layer bonded to the second planar side of the
19 sheet and extending across substantially an entire surface of second planar side.

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1 3. (Amended) [The insulated wall panel of Claim 2] An insulated wall
2 panel, comprising:
3 a rigid foam sheet with first and second planar sides and having first
4 and second grooves extending substantially the full length of the sheet in a
5 substantially parallel orientation in the first side of the sheet;
6 a first reinforcing strip having a length, a top and a bottom with the
7 bottom being disposed in the first groove and the top facing outwardly away from
8 the first groove, wherein the first strip extends substantially the full length of the
9 sheet;
10 a second reinforcing strip having a length, a top and a bottom with
11 the bottom being disposed in the second groove and the top facing outwardly away
12 from the second groove, wherein the second strip extends substantially the full
13 length of the sheet;
14 a first thin reinforcing layer bonded to the first planar side of the
15 sheet, and extending across the top of the first and second grooves and substantially
16 covering the entire first planar side of the sheet; and
17 a second thin reinforcing layer bonded to the second planar side of the
18 sheet and extending across substantially an entire surface of second planar side,
19 wherein the bottoms of the first and second strips each have two downwardly
20 extending flanges that are oriented substantially perpendicular to the first planar
21 side, and further wherein the top of the first and second reinforcing strips are
22 mechanically textured over the length of the first and second strips to provide an
23 improved gripping surface for drills and self tapping screws.

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1 4. (Amended) [The insulated wall panel of Claim 2] An insulated wall
2 panel, comprising:
3 a rigid foam sheet with first and second planar sides and having first
4 and second grooves extending substantially the full length of the sheet in a
5 substantially parallel orientation in the first side of the sheet;
6 a first reinforcing strip having a length, a top and a bottom with the
7 bottom being disposed in the first groove and the top facing outwardly away from
8 the first groove, wherein the first strip extends substantially the full length of the
9 sheet;
10 a second reinforcing strip having a length, a top and a bottom with
11 the bottom being disposed in the second groove and the top facing outwardly away
12 from the second groove, wherein the second strip extends substantially the full
13 length of the sheet;
14 a first thin reinforcing layer bonded to the first planar side of the
15 sheet, and extending across the top of the first and second grooves and substantially
16 covering the entire first planar side of the sheet; and
17 a second thin reinforcing layer bonded to the second planar side of the
18 sheet and extending across substantially an entire surface of second planar side,
19 wherein the bottoms of the first and second strips each have two downwardly
20 extending flanges that are oriented substantially perpendicular to the first planar
21 side, and further wherein the top of the first and second reinforcing strips have a
22 plurality of holes spaced apart at predetermined intervals along the length of the first and
23 second reinforcing strips.

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1 5. (Amended) [The insulated wall panel of Claim 2] An insulated wall
2 panel, comprising:

3 a rigid foam sheet with first and second planar sides and having first
4 and second grooves extending substantially the full length of the sheet in a
5 substantially parallel orientation in the first side of the sheet;

6 a first reinforcing strip having a length, a top and a bottom with the
7 bottom being disposed in the first groove and the top facing outwardly away from
8 the first groove, wherein the first strip extends substantially the full length of the
9 sheet;

10 a second reinforcing strip having a length, a top and a bottom with
11 the bottom being disposed in the second groove and the top facing outwardly away
12 from the second groove, wherein the second strip extends substantially the full
13 length of the sheet;

14 a first thin reinforcing layer bonded to the first planar side of the
15 sheet, and extending across the top of the first and second grooves and substantially
16 covering the entire first planar side of the sheet; and

17 a second thin reinforcing layer bonded to the second planar side of the
18 sheet and extending across substantially an entire surface of second planar side,
19 wherein the bottoms of the first and second strips each have two downwardly
20 extending flanges that are oriented substantially perpendicular to the first planar
21 side, and further wherein the top of the first and second reinforcing strips have a
22 plurality of slots spaced apart at predetermined intervals along the length of the first and
23 second reinforcing strips.

1 6. (Amended) The insulated wall panel of [Claim 2] any of Claims 3, 4
2 or 5, wherein the first reinforcing layer is bonded to the rigid foam sheet to enclose the
3 first and second reinforcing strips and define a first vapor barrier across substantially the
4 entire first side of the sheet.

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28 of the first reinforcing strip is placed in tension when the panel is bent away from the first
29 reinforcing strip before the foam sheet will fracture at the first groove.

1 10. (Amended) [The insulated wall panel of Claim 8] An insulated wall
2 panel, comprising:
3 a rigid foam sheet with first and second planar sides and having first
4 and second grooves extending substantially the full length of the sheet in a
5 substantially parallel orientation in the first side of the sheet;
6 a first reinforcing strip having a length, a top and a bottom with the
7 bottom being disposed in the first groove and the top facing outwardly away from
8 the first groove, wherein the first strip extends substantially the full length of the
9 sheet;
10 a second reinforcing strip having a length, a top and a bottom with
11 the bottom being disposed in the second groove and the top facing outwardly away
12 from the second groove, wherein the second strip extends substantially the full
13 length of the sheet;
14 a first thin reinforcing layer bonded to the first planar side of the
15 sheet, and extending across the top of the first and second grooves and substantially
16 covering the entire first planar side of the sheet; and
17 a second thin reinforcing layer bonded to the second planar side of the
18 sheet and extending across substantially an entire surface of second planar side,
19 wherein the bottoms of the first and second strips each have two downwardly
20 extending flanges that are oriented substantially perpendicular to the first planar
21 side, wherein the first reinforcing layer is bonded to the rigid foam sheet to enclose
22 the first and second reinforcing strips and define a first vapor barrier across
23 substantially the entire first side of the sheet, wherein the second reinforcing layer is
24 bonded to the rigid foam sheet to define a second vapor barrier across substantially
25 the entire second side of the sheet, wherein the first and second reinforcing layers

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26 **have a tensile strength at least 100 times as great as the tensile strength of the foam**
27 **sheet, and** wherein a second portion of the first reinforcing layer extending across the
28 top of the second reinforcing strip is placed in tension when the panel is bent away from
29 the second reinforcing strip before the foam sheet will fracture at the second groove.

1 11. (Amended) A method of manufacturing an insulated wall panel,
2 comprising the steps of:
3 creating a rigid foam block having first and second opposing sides;
4 cutting the foam block to form a plurality of stacked individual foam
5 sheets having first and second sides and a plurality of parallel recesses in the first side;
6 inserting a reinforcing strip having a top and a bottom into each of the
7 plurality of recesses in each of the plurality of sheets, **wherein the reinforcing strip has**
8 **a surface finish including at least a mechanically textured top surface, a plurality of**
9 **spaced apart holes or a plurality of spaced apart slots configured to engage**
10 **mechanical fasteners;**
11 covering the tops of each of the reinforcing strips with a first thin
12 reinforcing layer; **and**
13 bonding the first reinforcing layer to the first side of each of the foam
14 sheets.

1 13. (Amended) [The method of Claim 12] **A method of manufacturing**
2 **an insulated wall panel, comprising the steps of:**
3 **creating a rigid foam block having first and second opposing sides;**
4 **cutting the foam block to form a plurality of stacked individual foam**
5 **sheets having first and second sides and a plurality of parallel recesses in the first**
6 **side;**
7 **inserting a reinforcing strip having a top and a bottom into each of**
8 **the plurality of recesses in each of the plurality of sheets;**

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9 covering the tops of each of the reinforcing strips with a first thin
10 reinforcing layer;
11 bonding the first reinforcing layer to the first side of each of the foam
12 sheets; and
13 bonding a second reinforcing layer to the second side of each of the
14 foam sheets,
15 wherein the step of cutting the foam block includes the steps of:
16 drawing a hotwire frame of substantially equally spaced parallel hot wires
17 through the block from the first side to the second opposing side of the block[,] ;
18 simultaneously forming each of the plurality of grooves in the block with
19 each of the hot wires in the of the hotwire frame[,] ; and
20 completing a path through the block by substantially simultaneously
21 separating the block into the plurality of sheets.

1 21. (New) The insulated wall panel of Claim 1, wherein the first and
2 second reinforcing strips include a central recessed portion configured to receive
3 and support the head of a fastener.

1 22. (New) The insulated wall panel of Claim 21, further comprising a
2 plurality of fasteners coupled to the central recessed portion of both the first and
3 second reinforcing strips.

1 23. (New) The insulated wall panel of Claim 21, wherein the first and
2 second reinforcing strips include two non recessed portions that flank the recessed
3 portion and extending substantially the entire length of the respective first and
4 second reinforcing strips.

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1 24. (New) The insulated wall panel of Claim 23, further comprising a
2 plurality of headed fasteners having a head that is supported in the recessed portion
3 and a shank that extends through the recessed portion.

1 103 25. (New) The insulated wall panel of Claim 1 wherein an outwardly
2 facing surface of the first and second reinforcing strips is configured to guide the
3 insertion of a fastener therethrough.

1 137 26. (New) The insulated wall panel of Claim 25, wherein the outwardly
2 facing surface is configured with a surface texture that guides the insertion of a
3 fastener therethrough.

1 23 with 25 27. (New) The insulated wall panel of Claim 25, wherein the outwardly
2 facing surface is configured with apertures that guide the insertion of a fastener
3 therethrough.

1 28. (New) The insulated wall panel of Claim 1, wherein the rigid foam
2 sheet has a second side opposite the first side that has no reinforcing strips.

1 9 103 29. (New) The insulated wall panel of Claim 1, wherein lateral sides of
2 the first and second reinforcing strips are spaced at least 6 inches away from the
3 lateral edges of the rigid foam sheet.

1 30. (New) The insulated wall panel of Claim 29, wherein the first and
2 second reinforcing strips are generally spaced 12 inches apart.

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1 31. (New) The insulated wall panel of Claim 1, wherein lateral sides of
2 the first and second reinforcing strips are spaced at least 8 inches away from the
3 lateral edges of the rigid foam sheet.

1 32. (New) The insulated wall panel of Claim 31, wherein the first and
2 second reinforcing strips are generally spaced 16 inches apart.

1 33. (New) The insulated wall panel of Claim 1, wherein the first and
2 second reinforcing layers primarily consist of paper, foil or plastic film.